IN THE CLAIMS

Claims 1-13 are presented below, with claims 1-13 pending. As shown below, claims 1, 5-6, and 10-12 have been amended, and new claim 13 has been added.

1. (Currently Amended) A model adaptation apparatus for adapting a model used in pattern recognition in which input data in the form of a time series is classified into one of a predetermined number of models, said apparatus comprising:

data extraction means for extracting input data corresponding to a predetermined model, observed during a predetermined interval, and then outputting the extracted data; and

a model adaptation means for adapting said predetermined model using said data extracted during said predetermined interval by means of one of the ~~most~~ maximum likelihood method, the ~~complex~~ mixed statistic method, and the minimum distance-maximum separation theorem;

wherein said model adaptation means adapts an acoustic model for ambient noise during a noise observation interval that ends when a speech switch is turned on when a user starts speech.

2. (Original) A model adaptation apparatus according to Claim 1, wherein said model adaptation means adapts the model by using also a freshness degree indicating the freshness of said extracted data.

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3. (Original) A model adaptation apparatus according to Claim 2, wherein said model adaptation

means adapts said predetermined model using, as said freshness degree, a function which varies

depending upon the temporal position of the extracted data in said predetermined interval.

4. (Original) A model adaptation apparatus according to Claim 1, wherein:

said pattern recognition is performed on the basis of a feature distribution in a feature

space of the input data; and

said model adaptation means adapts the model using said feature distribution obtained

from said extracted data.

5. (Currently Amended) A model adaptation apparatus according to Claim 1, wherein said model

adaptation means adapts the model so that a measure indicating the degree to which said

extracted data is observed in said predetermined model becomes maximum or minimum, by

means of the ~~most~~maximum likelihood method, the ~~complex~~mixed statistic method or the

minimum distance-maximum separation theorem.

6. (Currently Amended) A model adaptation apparatus according to Claim 5, wherein said model

adaptation means determines a parameter of said predetermined model which gives a maximum

or minimum value of the measure based on the ~~most~~maximum likelihood method, the

~~complex~~mixed statistic method, or the minimum distance-maximum separation theorem, by

means of the Newton descent method or the Monte Carlo method.

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7. (Original) A model adaptation apparatus according to Claim 5, wherein the measure based on the minimum distance-maximum separation theorem is defined using a Bhattacharyya distance.

8. (Original) A model adaptation apparatus according to Claim 1, wherein said input data is voice data.

9. (Original) A model adaptation apparatus according to Claim 8, wherein said predetermined model is an acoustic model representing said input data during an interval which is not a voice interval.

10. (Currently Amended) A method of adapting a model used in pattern recognition in which input data in the form of a time series is classified into one of a predetermined number of models, said method comprising the steps of:

extracting input data corresponding to a predetermined model, observed during a predetermined interval, and then outputting the extracted data;

adapting an acoustic model for ambient noise during a noise observation interval that ends when a speech switch is turned on when a user starts speech; and

adapting said predetermined model using said data extracted during said predetermined interval by means of one of the ~~most~~maximum likelihood method, the ~~complex~~mixed statistic method, and the minimum distance-maximum separation theorem.

11. (Currently Amended) A storage medium which stores thereon a program for executing, using a computer, adaptation of a model used in pattern recognition in which input data in the form of

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a time series is classified into one of a predetermined number of models, said program

comprising the steps of:

extracting input data corresponding to a predetermined model, observed during a

predetermined interval, and then outputting the extracted data;

adapting an acoustic model for ambient noise during a noise observation interval that

ends when a speech switch is turned on when a user starts speech; and

adapting said predetermined model using said data extracted during said predetermined

interval by means of one of the ~~most~~maximum likelihood method, the ~~complex~~ mixed statistic

method, and the minimum distance-maximum separation theorem.

12. (Currently Amended) A pattern recognition apparatus for classifying input data in the form

of a time serried into one of a predetermined number of models, said apparatus comprising:

feature extraction means for extracting a feature value of said input data;

storage means for storing said predetermined number of models;

classifying means for classifying the feature value of the input data into one of said

predetermined number of models;

data extraction means for extracting input data corresponding to a predetermined model,

observed during a predetermined interval, and then outputting the extracted data; and

a model adaptation means for adapting said predetermined model using said data

extracted during said predetermined interval by means of one of the ~~most~~maximum likelihood

method, the ~~complex~~ mixed statistic method, and the minimum distance-maximum separation

theorem;

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wherein said model adaptation means adapts an acoustic model for ambient noise during a noise observation interval that ends when a speech switch is turned on when a user starts speech.

13. (New) A model adaptation apparatus according to Claim 1, wherein:

said noise observation interval has a first sub-interval and a second sub-interval beginning when the first sub-interval ends,

said data extraction means extracts a feature distribution corresponding to ambient noise during said first sub-interval of a noise observation interval, and

said model adaptation means adapts said acoustic model for ambient noise during said second sub-interval.

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